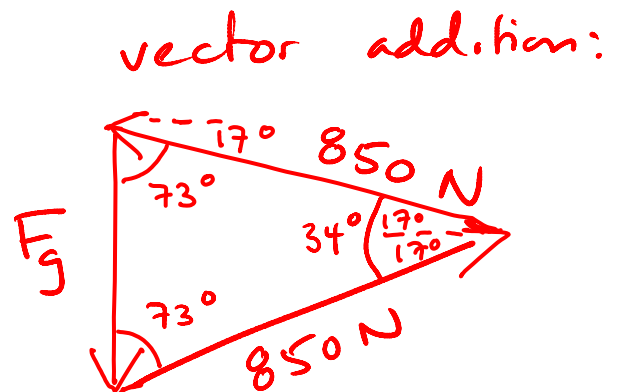
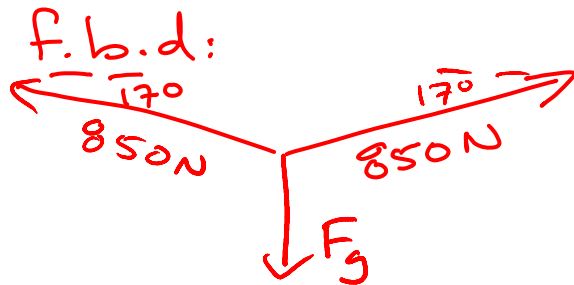
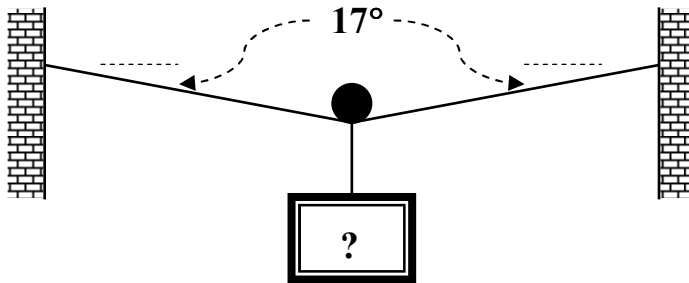


Example #5. A cable that can withstand a maximum tension of 850 N is strung across two walls. A pulley is placed on the cable, and various masses are hung from the pulley, causing the cable to sag. Through trial-and-error, it is found that the cable can only sag 17° without breaking. What mass was used to cause this sag?



Use sine law:

$$\frac{\sin 34}{F_g} = \frac{\sin 73}{850}$$

$$F_g = 497\text{ N}$$

$$m = \frac{497}{9.8}$$

$$m = 51\text{ kg}$$